GMC Motorhome News
from the GMC Motorhome People
A publication dedicated to the preservation of a classic and timeless vehicle

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Number 16

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COACH TALK INDEX

CLASSIFIED ADVERTISEMENTS

TROUBLESHOOTING LP-GAS SYSTEMS

by Wes Caughlan

Few GMC Motorhome owners realize that the LP-gas distribution system requires any more attention than turning a tank valve on before lighting a burner, and filling the tank once in a while. Proper operation of appliances such as the refrigerator and furnace depends heavily on proper function of the system, but it rarely gets any attention unless a problem with one of the appliances is obvious.

Over a year's time, a well-designed distribution system can be called upon to receive LP-gas vapor at pressures ranging from well over 200 psi to less than 10 psi. Nevertheless, the system will deliver LP-gas vapor steadily to one or more appliances operating simultaneously at a pressure of 11 inches WC (water column), with a variation of no more than plus or minus one inch WC. That's a demanding performance specification for any system because 11 inches WC is only 0.4 psi, and it should be checked at least once a year — particularly in the spring if the motorhome has been in storage all winter.

Gas pressure plus a number of other LP-gas distribution system checks can be made using a simple U-tube manometer that dates back to the 17th century when an Italian physicist named Torricelli learned that pressures could be accurately measured with a column of water. Torricelli found that the diameter of the column was unimportant as long as it did not get too small and permit capillary action to bias its height. The only problem with this form of pressure measurement was that it was cumbersome as pressures rose. Fifteen psi is the equivalent of over 34 feet of water column, and you would need a tall ladder to read it! On the other hand, when pressures are low, or you desire to measure fractional-psi pressures, a crude water column of almost any diameter is a very useful tool, and it is more accurate than even the finest gauges. In fact, such a water column is used to calibrate low-pressure gauges and check them for accuracy.

The water column most commonly used as a low-pressure measuring tool is the U-tube manometer. It is a slight refinement of the original Torricelli column in that it is more compact and easier to use, but it works the same. Instead of Toricelli's single column, the U-tube manometer has two vertical columns of the same diameter that oppose each other. Initially the water columns in the legs of the U are the same height because the pressure on each column is the same. When the pressure to be measured is applied to one leg, the water will drop and the water in the opposing leg will rise. The water column (WC) is the difference between the heights of the water columns in the legs of the U.

We prefer and recommend a U-tube manometer for measuring and monitoring LP-gas distribution system pressures, because we have found very few accurate gauges. Most gauges are Bourdon-tube gauges that are very fragile because the tube must be very sensitive to measure pressures less than one psi. The gauges are more convenient for the average serviceman, but they usually just get thrown into his toolbox along with the rest of his tools. Unfortunately, the first throw into the toolbox often ruins the gauge's calibration. Still, most servicemen rely exclusively on their gauge, and few check its calibration regularly. To top it all off, these low-pressure gauges are expensive, but you can build an always-accurate U-tube water manometer in about an hour with about $5 worth of local hardware store materials.

Such a homemade manometer consists of a piece of 1×6-inch pine lumber about two feet long, six feet of ¼-inch clear plastic tubing and four electrical staples. Its feet can be just about anything that will hold it vertical, or it can be hung on the wall with a nail. To function properly, it simply needs to be vertical so the heights of the water columns in the legs of the U are the same prior to applying pressure. Horizontal lines drawn on the board one inch apart or a measuring tape will measure the

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LETTERS

Once again you have come through with the solution! This time it was the answer to Fred Heidner in the March "Coach Talk." He could not get grease into his brand new lower ball joints.

I had that problem, and I also removed the Zerk fittings to see if grease would travel through them. It did, so I concluded wrongly that the new joints must be tight and would work loose.

After reading your answer, I took both grease nipples off and both of the base units had clearly bottomed out. I took about 0.040 inches off the threaded faces and reinstalled them. Now, grease can be pumped in beautifully.

A simple solution to a potentially dangerous problem. This shows the importance of attention to detail.

Mike Bond
Roanoke, Texas

I just received my copy of the March issue. Great idea including that big front page technical article on shock absorbers. I really enjoyed it and hope to see more like it in the future.

Scott Woodworth
Lemoore, California

With reference to "Coach Talk" in the March issue, please inform Ms. Debbie Bragg of Fort Worth, Texas, that if she is properly skirted she doesn't need a bra.

Dale Anderson
New Lenox, Illinois

GMC Motorhome News is really the best. The shock absorber article in the March issue was a revelation.

Larry Frear
Aptos, California

I want to thank you on behalf of the many Revcon owners who have been referred to me by either you or one of your staff members. Although I have absolutely no pecuniary interest in their purchase of parts from anyone and certainly am not in business myself, I take pleasure in helping them out. Revcon owners do not have a guardian angel comparable to Cinnabar Engineering, Inc.

Bill Young
Harrisonburg, Virginia

Because of your long association with Alexander & Alexander, I want to take this opportunity to personally advise you of the company's official name change to RV Alliance America (RVAA). The new organization will result in more than a name change. Our motorhome customers are already noticing the improvements we've made. They include additional sales and service staff as well as improved telephone and systems technology.

Our sales and service office is now located in Bellevue, Washington. Its toll-free telephone number remains unchanged at 800-521-2942.

Brock Benn, Senior Vice President
RV Alliance America
Clinton Township, Michigan

Terry Kane's shock absorber article in the March issue was one of the best feature articles you have published.

Gene Baguley
Apple Valley, California

GMC MOTORHOME TELEPHONE NUMBERS & BUSINESS HOURS

800-GMC-TRUCK (800-462-8782)
for Recall assistance and general information on GMC products.
Monday through Friday
8:00 a.m. to 5:00 p.m. Eastern time.

800-720-CBAR (800-720-2227)
for Genuine GMC Motorhome Parts and GMC Motorhome Operating and Service Publications.
Monday through Friday
8:00 a.m. to 5:00 p.m. Eastern time.

810-648-2444
for GMC Motorhome Service.
Monday through Friday
8:00 a.m. to 5:00 p.m. Eastern time.

810-648-9858
for GMC Motorhome FAX and Voice Mail.
Any day at any time.

gmcmh@aol.com
for GMC Motorhome E-Mail.
Any day at any time on the Internet.

650-948-8664
for GMC Motorhome Technical Assistance.
Monday through Friday
8:30 a.m. to 5:30 p.m. Pacific time.

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WC. This manometer can be used to calibrate gauges and to directly check the pressure in an LP-gas distribution system. It can also be used to evaluate the system's performance and to check it for leaks.

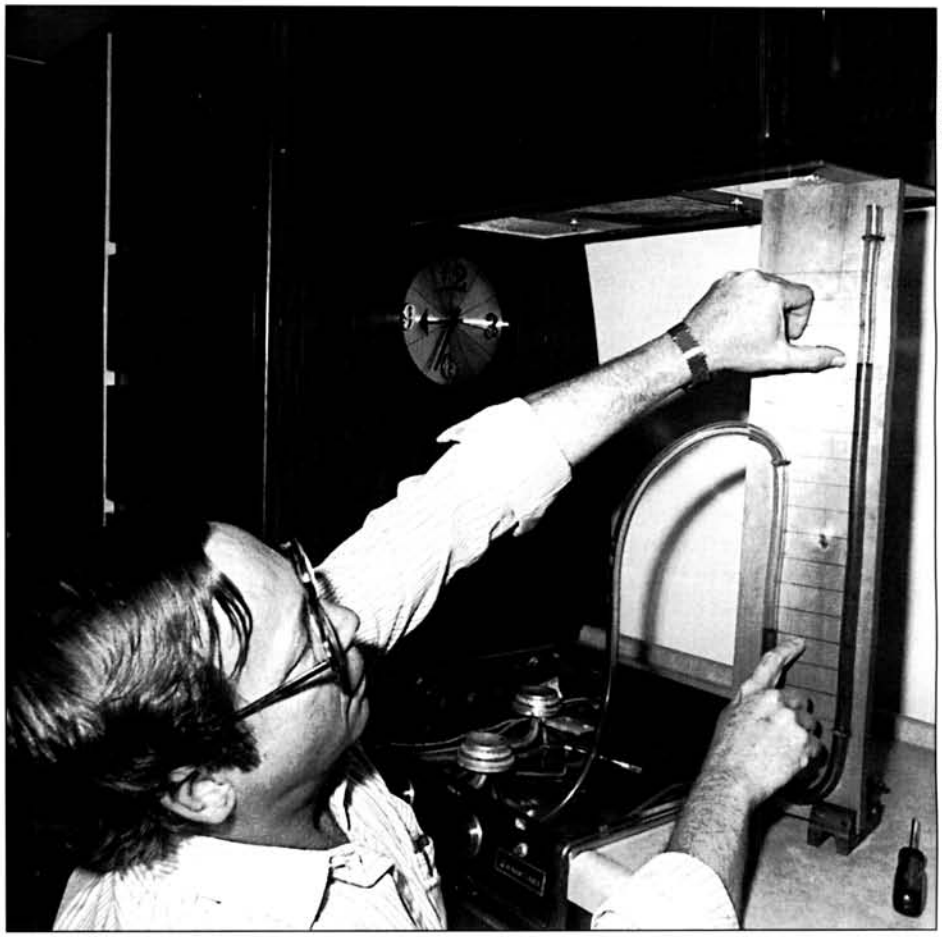
Let's fill the manometer and check a GMC Motorhome's LP-gas distribution system. The exact amount of water put in the manometer is not important. Just add enough so there are six to eight inches in each leg. Then, find a centrally located pressure tap in your motorhome's LP-gas distribution system. You may have to "tee" a tap into a line, but a stove-burner orifice will do in older motorhomes that don't have a built-in, pressure-reducing regulator. A stove-burner orifice can be used in all GMC Motorhomes that are still equipped with the original stove.

One screw usually removes a stove burner, and the ¼-inch plastic tubing will often fit leak-free over the burner orifice without a clamp. Position the manometer vertically so the water column heights in the legs of the U are equal prior to making the connection.

Open the burner valve leading to the manometer and one other burner. Light the open burner and turn on at least one other burner or the oven. When you open the valve leading to the manometer, the water in one of the legs will drop and the water in the other leg will rise. The system pressure is the difference between the heights of the water columns in the legs and should ideally be 11.0 inches WC in the summertime. In the wintertime, 10.5 inches WC will be around 11.0 inches next summer because of normal temperature effects on the gas in exposed plumbing.

If you do not get a reading of 10.5 to 11.0 inches, your regulator may need adjustment. If you don't know what or where the regulator is located, you should seek the assistance of someone who does. Otherwise, raise or lower the system pressure by increasing or decreasing the regulator's spring pressure, turning the adjustment in the regulator's top clockwise or counterclockwise until you get a reading of 10.5 to 11.0 inches.

Once you have reached a normal setting of 10.5 to 11.0 inches, watch the manometer for a while. The water columns should not float or change rapidly. If they do, the regulator may not be working properly or it may be freezing, particularly if it is a typical low-capacity unit. Or, you may have air in the tank, which should have been vapor-pressure purged four to five times when it was new or last exposed to atmospheric pressure.



Bill Estes

A simple U-tube manometer can be built for about $5 in less than an hour. The water column (WC) in this pressure check was 10.5 inches.

For the moment, let's assume the manometer is steady. Now, light the furnace and watch the manometer. A small drop in system pressure is normal, but a drop approaching ½ inch or more is not. If the pressure drop is significant, you could have the regulator difficulties mentioned above, your LP-gas distribution system's pipes may not be large enough, or they may be kinked or obstructed.

Again, for the moment let's assume the drop is small and the manometer stays steady. Now, turn off all gas-consuming appliances and watch the manometer. A rise in system pressure is normal, but a rise approaching 1½ inches or more is not. Also, the rise should be prompt, and stop. If the lock-up pressure is 1½ inches or more than the operating pressure, the problems mentioned above are again likely. If the pressure continues to rise, the regulator is defective and should be repaired or replaced, because such a condition may damage your appliances. Also, such a condition may become dangerous because the excess pressure will ultimately be vented from the regulator and/or the appliances even when they are turned off.

Once again, let's assume that everything checks out and the pressure rises promptly and stops at a lock-up pressure that is much less than 1½ inches higher than the

operating pressure. Now, go outside and turn off the LP-gas tank valve. Then go back inside the motorhome and slowly open one of the stove burners just enough to lower the system pressure to 10.0 inches WC. Stand back for 10 minutes and then read the manometer. If the system pressure is less than 10.0 inches after 10 minutes, get out the soap solution because you have a leak. If the system pressure is more than 10.0 inches after 10 minutes, the tank valve leaks, and it should be repaired or replaced by an LP-gas serviceman, because replacement requires emptying the tank and vapor-pressure purging before refilling. If the system pressure is still 10.0 inches after 10 minutes, the system can be assumed to be leak-free!

Unfortunately, most GMC Motorhomes will not pass all of these tests, and many of them didn't pass when they were new. The problem turned out to be an inadequate regulator. The original equipment regulator worked fine in the summertime and in the fall, but it would freeze in northern Michigan in the wintertime. Fortunately, the distribution system's pipe sizes were adequate, because you are pretty much stuck with them once the motorhome is built. However, if you are remodeling your motorhome, considerable attention should be paid to pipe sizes. If they are inadequate, they can cause intolerable system pressure drops as appliances cycle on and off. It is the same phenomenon most of us have experienced in a shower when someone flushes a toilet nearby! Recommended manifold and branch pipe sizes are available in chart form at most LP-gas dealers, and they should be followed regardless of cost if you want trouble-free appliance operation.

The LP-gas tank valve is seldom defective. However, you can contribute to its longevity by not closing or opening it with too much force. The valve is designed to close hand-tight without wrenches, and it should not be opened fully and forced counterclockwise because that stresses the gland. Most manufacturers recommend opening it until it stops and then turning it back a bit. This gives you a quick test of whether the valve is open, and it eliminates stresses on the gland. On the other hand, a leaking tank valve is not something to be ignored.

Bill Estes

The LP-gas pressure can be adjusted with an ordinary screwdriver. The system pressure is raised or lowered by turning the adjustment in the top of the regulator until the manometer reads 10.5 to 11.0 inches WC.

That brings us down to the regulator, which is probably the most neglected component in a motorhome, from design as well as maintenance standpoints. As the LP-gas distribution system performance specifications clearly show, the regulator has a Herculean job to perform over a considerable temperature range. Unfortunately, the regulator in GMC Motorhome LP-gas distribution systems was chosen with an eye only to cost, and it is ignored by most owners.

Because unacceptable gas-pressure regulation was found in many recreation vehicles, the code was changed from single-stage to two-stage regulators in 1978. Unfortunately, our tests clearly show that two cheap regulators still do not equal one good one! The reasons for this are quite simple. The code became a marketing man's delight in that he could now sell two regulators per motorhome instead of just one. In fact, one manufacturer advertised positively that it was doubling up on its old single-stage regulator, which supposedly made it better. Since the first-stage regulator only reduces tank pressure to 10 psi, the rip-off is clear because the first-stage regulator will be fully open in extreme weather, and you will be totally dependent on the old single-stage regulator when you need it most and it is least capable of performing.

There is a lot of merit to two-stage LP-gas pressure regulation when it is properly engineered into an LP-gas dis-

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Coach Talk

by Wes Caughlan

Fuel Hoses

As I proceed to drop my fuel tanks, I've looked for fuel hose. I find at least three SAE ratings so far and need advice on the correct one. The cheapest is 30R7 rated hose; next is 30R7 MXRI; and a third one is 30R9.

There are probably more, but I found these at three different auto parts stores. Cost increases from 60 cents per foot, to 90 cents and to $3.50 for the 30R9. I already bought the 30R7, but since I want to avoid a 5- to 10-year solution, I'd like not to do this again for a long time. What hose would be the smartest choice?

Chuck Boutell
Arlington Heights, Illinois

Since I didn't have a copy of the SAE specifications, Chuck, I called one of our hose suppliers. He didn't have the SAE specifications either, so he called Gates. That company supplies most of his and many of our hoses.

The SAE 30R7 specification is for normal fuel hose. The SAE 30R7 MXRI is *not* an SAE specification. We think the MXRI is a product, date or cure code. The SAE 30R9 specification is for high-pressure, fuel-injection hose.

Gates has two grades of 30R7 hose. We buy the better grade because it seems to have more substance. I cannot tell you whether it will last longer or not.

With respect to coolant hose, we also buy the better grade for the same reason. I guess we think it will last longer and, as you say, avoid a 5- to 10-year solution.

Alcoa Part Numbers

I've been in the market for a set of Alcoa wheels, but everyone has a different price. There weren't any part numbers in the March 1997 issue, and I suspect my inability to compare may be different part numbers.

What are the correct part numbers for the GMC Motorhome? Also, what are the correct hardware numbers?

Henry Davis
Soquel, California

There are many things that go into an Alcoa-wheel price, Henry. Some companies are just brokers of the wheels. Others are brokers of the wheels and lug nuts. Those with an investment stock and sell complete Alcoa packages, which include the wheels, lug nuts, decorative hardware and longer GM stud bolts. Finally, some sell attractive packages that include mounted and balanced LT225/75R16 LRE (10-ply rated) all-steel tires.

The Alcoa aluminum wheel for the GMC Motorhome is Alcoa part number 160231, and it comes with a TR-543 valve. The Alcoa part number for the lug nuts is 139987. The GM part number for the longer stud bolts is 704922. These stud bolts are for aluminum or steel wheels with or without wheel covers. New front and rear hubs come with the longer stud bolts already installed.

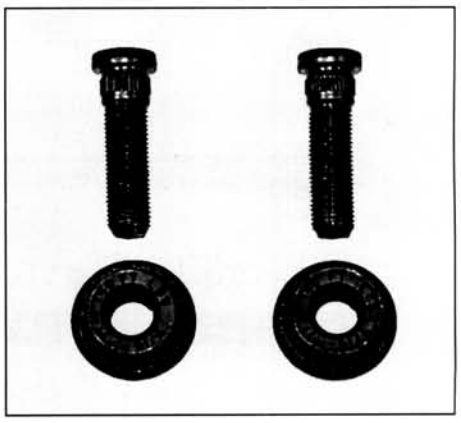
The Alcoa 160231 Wheel, 003611 Center Cap and 000190 Hug-A-Lug Nut Covers.

Now, let's stop for a moment, because the Alcoa lug nuts are as important as the longer GM stud bolts that meet the Alcoa minimum stud standout requirement of 1.5 inches. Lug nuts are one of the ways that brokers quote lower prices. They sell an aftermarket lug nut that is much cheaper than the Alcoa lug nut, and their package price can be cheaper. Unfortunately, the quality isn't there according to Alcoa and other experts in the wheel industry.

The two-piece flange nut used on Alcoa wheels was first used on Ford wheels years ago. It works fine when it is properly made and not over torqued. Unfortunately, there are few aftermarket nuts that have the substance to withstand excessive torque, and they come loose when the flange collapses. This fact has been very costly to Ford, and it is well known at Alcoa. That's why Alcoa cautions against using any lug nut other than its lug nut. Again, it is Alcoa part number 139987.

Once you have the Alcoa lug nuts and the longer GM stud bolts in the quote, you are on your own. Alcoa manufactures decorative hardware and a lot of people like it. The center cap is Alcoa part number 003611, and the "Hug-A-Lug" nut covers are Alcoa part number 000190. There is also a lot of decorative hardware in the aftermarket. As long as it doesn't compromise the Alcoa lug nuts to hold it on the wheel, some of it is worth considering. Aftermarket decorative hardware pricing varies tremendously.

To get comparable quotes, you need to write down what you need. The list for most GMC Motorhomes should start with 6 or 7 Alcoa 160231 wheels, 48 or 51 Alcoa 139987 lug nuts, 48 GM 704922 stud bolts and decorative hardware of your choice. Once you have prepared a list with part numbers, most of the quotes will be within a few dollars of each other when freight and sales tax are considered, and



The Alcoa 139987 Lug Nuts and the GM 704922 Stud Bolts.

your choice will probably boil down to service after the sale, which very few brokers provide.

Air-Bag Substitute

Just about every GMC Motorhome owner I know carries a spare air bag. Over the years, you have recommended against doing so for a number of reasons. They include deterioration in storage, leakage that isn't discovered until the warranty has expired, storage space requirement and others.

Instead of carrying a spare air bag, you have suggested a number of substitutes. They include chock blocks with lag screws, threaded rods, ends of fence posts and others.

Can you be more specific? Which substitute do you recommend?

Kevin McCarthy
Ames, Iowa

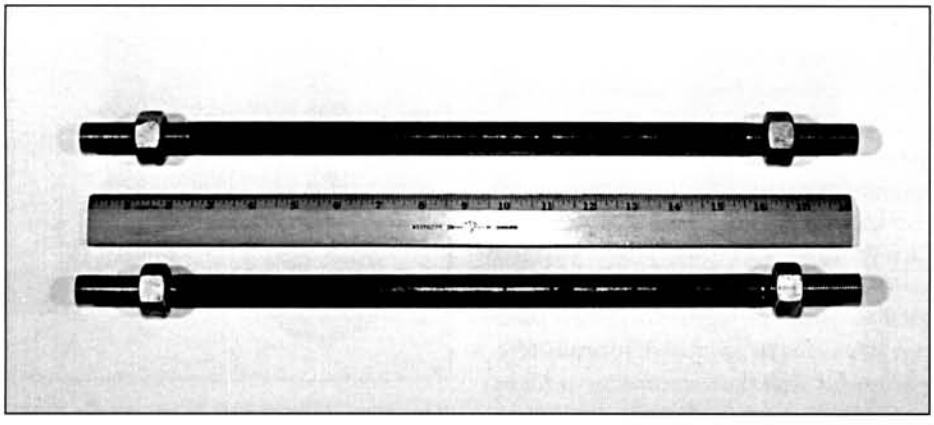
I like the threaded rods best, Kevin. They take up very little space, and allow you to adjust the rear ride height. A GMC Zone Service Manager gave me a set in 1975. I have carried them ever since, but have never used them. That's another reason not to carry a spare air bag along with the fact that the GMC Motorhome Parts Distribution Center can get one to you just about anywhere in North America in less than 24 hours.

The rods are ¾-inch mild steel, and they are a little over 18 inches long. Both ends are threaded with ¾-16 SAE (NF) threads for about 2½ inches. A full-size ¾-16 nut is loosely installed on the end of each rod. These nuts are used to support the control arms and adjust the rear ride height when the rods replace an air bag.

The rods are easy to install. Simply remove the air bag and save the two jam nuts that hold the air bag in the control arms. Make sure the full-size nuts on the rods leave at least one inch of the rod ends protruding from each nut.

Jack the side of the motorhome until the control arms open sufficiently to insert one end of the rod into one control arm and the other end of the rod into the other control arm. When the rod is in both control arms, lower the motorhome to proper ride height (8 to 8¼ inches under the end of the rear frame rail) and loosely tighten the full-size nuts against the control-arm faces. Then, install the jam nuts and tighten them on the rods just like you would tighten them on the ends of a new air bag.

The rods will get you home or to the nearest campground. Your ride quality won't be very good and you may have to drive slowly on rough roads, but you won't be stranded in the middle of nowhere.



Threaded rods take up very little space and they make excellent air-bag substitutes.

Hot Water Deposits

I have owned a 1974 Canyon Lands since 1977 when it was 10,000 miles new, and I enjoy every one of your articles in "Coach Talk." Shortly after purchasing the motorhome the original aluminum water heater perforated around a horizontal line about halfway up the tank. I don't think the previous owner ever had the water-pump system working, because we found plastic chips completely blocking a check valve that was between the fresh-water tank and the water pump.

I replaced the water heater in October 1978, so it is now nearly 20 years old! My problem is that some white "salts" are coming through the hot water, blocking fixtures and valves. I presume this to mean that the anode has been completely sacrificed, and it is time to buy a new water heater?

Please confirm this is correct before I go to the trouble. The "Hot Water Odor" item in the December issue triggered this letter.

John Mack
Laguna Beach, California

Your water heater doesn't have an anode per se, John. The whole inside lining of the aluminum tank is the anode. When it is gone, the tank will soon perforate and leak.

The deposits you are experiencing may be aluminum oxide, which would mean the tank is not long for this world. On the other hand, they could be lime, which is common in hot water tanks.

If the tank isn't leaking (yet), I would suspect lime. Visit your local hardware or plumbing center to investigate products that will deal with lime. Alternatively, change your water source. Lime (calcium oxide) comes from the water.

Shower Drain

We live in fear! Every time we dry camp in our 1976 Palm Beach we are afraid that the holding tank will overflow into the bathroom on the way home. It happened once, and we have lived in fear ever since. It took forever to get rid of the awful smell.

We have purchased temporary plugs, and have even used a sink pad on the way home. Unfortunately, almost every drain plug sold is designed to keep fluid in, not out. Most plugs come out of the drain or off the drain with just a little back flow.

Do you know of any way to keep the contents of the holding tank out of the bathroom when the holding tank is full? We love to dry camp, but we usually drive home in fear.

Mark Fernandez
Santa Fe, New Mexico

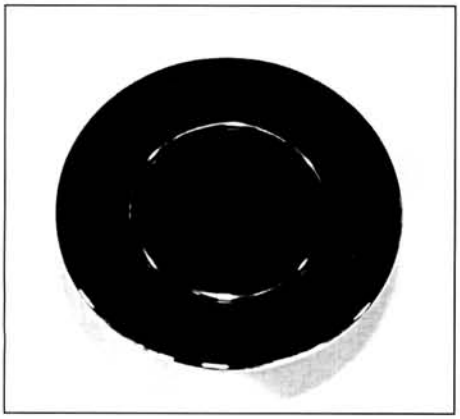
A touch of the toe opens the shower drain.

Fear not, Mark. A plugged shower drain that will keep the contents of your holding tank in the holding tank is available for your motorhome. It is an ingenious replacement for the shower drain that was original equipment in all GMC Motorhomes. With the exception of the center portion, it even looks the same as the original.

The new drain has a thick metal disc in its center that is surrounded with an "O" ring seal. The disc pivots open vertically with the touch of a toe, and it closes flat with another touch of a toe. When it is closed flat, the drain is plugged equally in both directions. It will not let fluid in or out in the closed position, and it has been successfully tested on a number of GMC Motorhomes.

Should you want to remove the center disc, the drain comes with a suction cup that will pull the disc out when it is in the closed position. The disc will not come out in the open position for simple geometrical reasons.

Give it a toe, and it's open. Give it another toe, and it's closed. It is GMC Motorhome part number 600510. The drain sells for $18, which is a small price to pay to eliminate holding-tank fear. I know, because I used to drive home in fear, too.



A touch of the toe closes the shower drain.

Shiny Tires

I attended a motorhome rally recently, and one of the participants recommended using brake fluid on tires and air bags periodically. He said it would clean them and make them look just like new.

I have never heard of putting brake fluid in or on anything except a master cylinder for brakes. There are a number of products in the market for cleaning rubber and plastics, but none of them contain brake fluid. Will brake fluid do the job?

Larry Frear
Aptos, California

Absolutely not, Larry. In fact, brake fluid may permanently damage tires and air bags, and it should be washed off with soap and water if it is accidentally spilled or poured on them.

Whoever made such a recommendation obviously is unaware that no tire should be exposed to any petroleum distillate for any length of time. Parking a motorhome tire in a puddle of oil or gasoline (or brake fluid) will permanently soften the rubber and lead to premature tire failure.

Periodically I get inquiries of this kind at MOTORHOME magazine, because brake fluid will make tires shiny by softening and dissolving some of the rubber. Such a practice apparently goes back to the days of natural-rubber rather than modern-day, synthetic-rubber tires.

Almost all of the major tire companies recommend nothing but soap and water on their products. They say soap and water will keep tires clean, but it won't remove the waxes and preservatives that protect the tires from the elements.

Waxes and preservatives are in synthetic-rubber compounds, and they work to the surface when the tires flex and get warm. They are replenished when the tires are used, and that's one of the reasons we recommend driving motorhomes 10 to 20 miles once a month to keep the tires and other vehicular components exercised.

Low Voltage

I own a 1975 Eleganza II. There is around a 3-volt drop from the front of the motorhome to the rear lights and at the trailer hookup socket. This makes the lights on my towed vehicle barely visible in daylight.

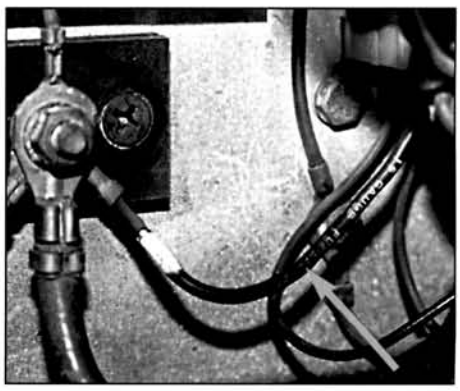
I have run a wire directly from the negative terminal of the vehicle battery to the rear of the motorhome, and rechecked the voltage at each light using that ground. The voltage does not improve which I think would rule out a poor or intermittent ground.

Where do I start looking for the voltage drop? As you well know, the wiring is a nightmare to trace! I assume the light switch is the starting point, but that wouldn't have anything to do with the turn signals having low voltage.

Ben Mahoney
Lexington, Kentucky

Your known ground clearly shows there is resistance in the positive circuit, Ben. Apparently, you don't have a wiring diagram. The GM wiring diagram makes finding the resistance a lot easier. The diagram for your motorhome is in the back of Maintenance Manual X-7525.

Just about all vehicle lighting passes through the headlight switch, but there are connectors before it and after it. Then,



The main fusible link (arrow) looks heavier than its 16 gauge internal wire.

there are the connectors in all of the branch circuits. The turn signals and hazard signals come off the battery bus through a 20-amp fuse behind the glove compartment. If you get the same voltage from a taillight signal and a turn signal, you can probably eliminate everything before the switch and the fuse block except the fusible link. The fusible link is often the culprit. It is a heavily insulated 16-gauge wire of a specific length that is like a main circuit breaker in your home.

The wiring diagram shows wire color, wire size, connectors and the individual lights. I suspect you will find a loose or corroded connector or a weakened fusible link that is causing your problem. I encourage you to find it, because a 3-volt drop indicates a resistance that is putting out a lot of heat if it is all in one place.

Transmission Vent

When I start my motorhome after it has sat for a few days, a small amount of transmission fluid is expelled from the vent. After the initial expulsion, everything is fine. The transmission is not overfilled. In fact, the fluid level measures almost a pint low when it is hot.

The expelled fluid accumulates on the side of the transmission and the engine block. Even if this is normal, I am concerned about the potential fire hazard, because the fluid eventually drips on the left-hand manifold pipe.

What causes the expulsion? Also, what can be done to minimize the potential fire hazard?

Dave Erickson
Roanoke, Virginia

There are a number of conditions that cause fluid expulsion, Dave. You have eliminated the most common one, which is overfilling. I suspect you are experiencing excessive torque-converter leakdown, which gets worse with transmission age.

When a motorhome (or an automobile) sits for a few days, the fluid in the torque converter gradually drains into the pan. Tight-fitting parts and the vacuum that develops in the torque converter retard this drainage, but it increases with time and transmission age. Normally, this is nothing to cause concern because once the engine is started the pump in the transmission refills the torque converter and leaves a normal fluid level in the pan. That's why transmission fluid should always be checked when the engine is running. And, that's why transmission fluid should be drained into a clean pan and measured when it is changed. If the motorhome has been sitting for a long time and the engine is not started before the transmission pan is taken down, eight or nine quarts of fluid will drain from the "pan" instead of the normal four quarts.

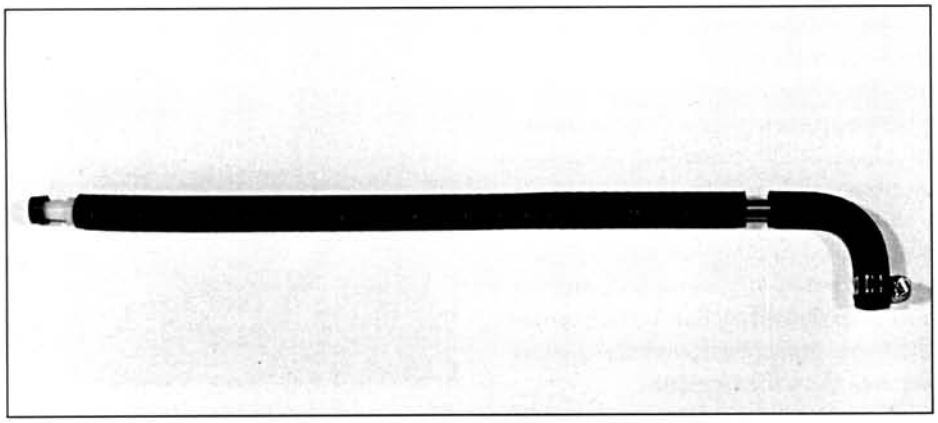
Transmission fluid expulsion has caused a number of GMC Motorhome fires. Some of these fires have totally destroyed the motorhomes.

For some time, we have been extending the transmission vent to the side of the motorhome. Once this is done, any expelled fluid will drain onto the ground and not onto a hot exhaust pipe. Recently, Bob DeSaussure of San Rafael, California, sent me a drawing of a do-it-yourself vent extension that anyone can install after prying off the vent cap.

The parts consist of a molded rubber elbow with a ⅜-inch inside diameter, a short length of ⅜-inch copper tubing, 38 inches of ⅜-inch fuel hose, one hose clamp and a vent cap. The molded rubber elbow can be cut out of a GM PCV hose. (GM part number 25508425 yields three elbows. Give the extra elbows to your friends!) The vent cap is GM part number 8640496, and it is stocked by most GM car and truck dealers.

Once the vent cap is pried off, install one end of the elbow on the vent nipple and secure it with the hose clamp. Measure the length of ⅜-inch fuel hose from the end of the elbow to the side of the motorhome, and cut the hose. Cut it a little short to allow for the length of the new vent cap.

The hose easily runs in the strapped "U" channel under the floor above the vent. The last strap on the "U" channel creates a resting place for the end with the vent cap at the side of the motorhome. Once the other end of the hose is connected to the elbow using the short piece of copper tubing and a little dishwashing soap to aid assembly, the vent is permanently extended and the hose will stay in place in the "U" channel. Any future fluid expulsion will now be out of harm's way.



A transmission vent extension will direct any fluid expulsion away from hot parts.

Leaking Windows

Do you have any information on how to reseal the stationary side windows on my 1973 Canyon Lands? They have moved forward from the rubber seal, and there is a gap between the edge of the glass and the seal on all of the side windows.

The gaps vary from just a little to as much as ⅛ of an inch. They allow dust and water to get into the motorhome.

Ruth Higgs
Bullhead City, Arizona

You've been parking your motorhome on a downhill slope in the Arizona sun, Ruth. When a GMC Motorhome is parked in the sun, it warms the glass and softens the adhesive that holds the sta-

tionary glass panels in place. When this occurs and 1973, 1974 and 1975 models are parked front end down, or 1976, 1977 and 1978 models are parked front end up, the stationary glass panels will ooze in the direction of the motorhome's downward slope, creating the gaps you describe.

The solution is to park the motorhome on a level surface on a sunny day and let the glass get nice and warm. Then, take a block of wood and place it on the vertical center mullion, and use a hammer to gently drive the stationary glass back to its original position.

While you're at it, take a look at the sliding window channel in your window frames. General Motors issued a Service Bulletin in June 1975 (75-IM-21) that affected all 1973 through 1975 side windows and 1976 through 1978 driver and passenger windows. It replaced the original channel that contained rusting wire with a flocked rubber channel.

The original part number was 702600, and the new part number is 2003071. The new flocked rubber channel comes in 25-foot sections, or half-sections for the driver and passenger windows. It is cut to length and then measured for the location of the drain slots in the channel, which don't always line up with the drain slots on the outside edge of the window frame.

A leather punch is used to perforate the new channel over the drain slots, and it is then put in the window frame. Weatherstrip adhesive keeps the new channel in place, but only the ends need to be glued. Don't over apply the adhesive, because you might want to remove the channel sometime in the future.

The large side windows in 1976 through 1978 models have plastic tracks for both the sliding glass and the screen. The tracks come in 6-foot lengths and are part number 2004682 for the glass and 2004684 for the screen. The exterior weather stripping is part number 009344 for the stationary glass, 009842 for the sliding glass and 0102811 for the vertical center mullion. Track replacement is pictured and discussed on pages 1-8 and 1-9 of Maintenance Manual X-7525.

Slots must be cut in the bottom glass track for water drainage. An X-acto or a utility knife is used to cut the slots.

Skirt Bracket

One of the 793495 Rear-Fender Skirts on my 1978 Royale broke at the upper screw holes. I installed it about a year ago. The new skirt replaced a skirt that broke at the bottom.

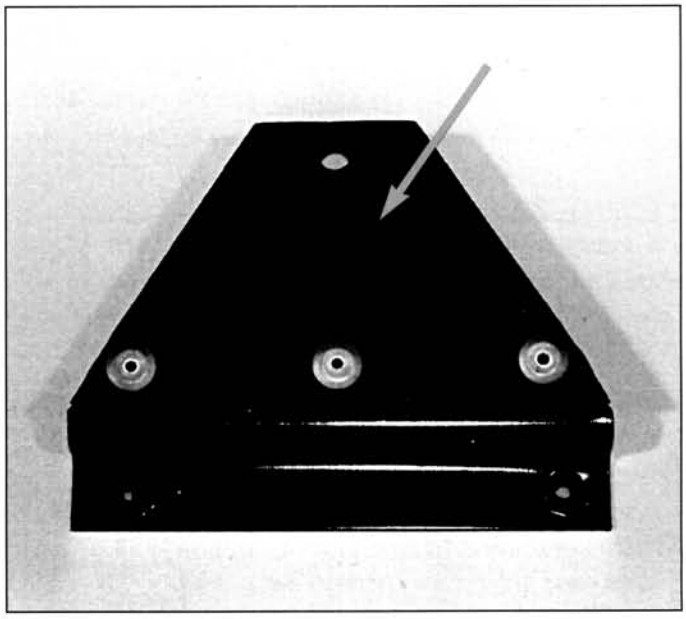
We had the same skirts on our 1977 Royale and never broke one despite several flat tires. Other GMC Motorhome owners tell me they have never broken a one of these skirts.

Is there something wrong with my skirt? I don't look forward to having another one sanded, primed and painted.

Jon Pickard
Riverside, California

There is nothing wrong with your skirt, Jon, but there is probably something wrong with your skirt bracket and your body mounts and frame pads. Body mounts and frame pads were discussed in the June 1997 issue.

The GMC Motorhome body moves independently of the frame. The original equipment Skirt Bracket (part number 793494) connects the skirt to the tandem-axle mount through a piece of flexible material. Many people don't understand the purpose of the flexible material, and they replace the OEM bracket with a solid or semi-solid bracket. Such a bracket puts the skirt in jeopardy every time the motorhome hits a bump, because the skirt is rigidly attached to the body.



The flexible portion of the skirt bracket (arrow) allows the skirt to move with the body of the motorhome.

As discussed in the June 1997 issue, the frame pads maintain clearance between the body and the frame. When they fall out, that clearance is lost and the fender skirts are compressed vertically. This strains the upper and lower mounting points on the skirts.

Order a new 793494 Skirt Bracket along with a new 793495 Skirt, and get Lamey Enterprises to replace your frame pads and body mounts on its new lift. Then, your fender skirts will quit breaking.

Broken fender skirts are just a manifestation of the real problem. The same is true for cracked manifolds and a number of other parts failures. Replacing the broken parts often does not fix the real problem.

Onan Control

I have a 6-kw Onan generator in my 1976 Palm Beach. It works fine except it will not start with the interior switch. It starts with the outside switch on the generator and can be shut off using the inside switch if it is not run for over five minutes.

When I attempt to shut the Onan generator off inside after running it for awhile and warming it up, it will act like the choke is applied and kick and buck. Letting off the "kill" switch allows the generator to resume normal operation.

I'm wondering if the circuit board is bad or maybe there is just a bad ground? I do not have a wiring diagram and tried to run down the wires going to the inside switch with no luck. Do you know where I can find a

wiring diagram for the Onan generator? Can you suggest a fix?

Dave Griffith
Cincinnati, Ohio

You're on the right track, Dave. When you can start and stop an Onan from the outside, but not the inside, the problem is almost always with the inside control or the wiring in between the Onan and the control. To make Onan installation easier on the production line, General Motors put a connector in the wiring that goes to the inside control. The connector is located at the rear of the Onan compartment. After pulling the Onan out, the connector can be seen at the lower right rear in the back of the compartment.

This connector is often the cause of the problem you describe. It is not weatherproof, but it is exposed to the weather, which ultimately compromises its integrity.

The control wiring is relatively easy to find without a wiring diagram. It is four white wires coming from the Onan. They change to blue, pink, green and tan wires at the GM connector.

Once you have found the connector at the rear of the generator compartment, pull it apart and clean its contacts. If that doesn't restore its integrity, eliminate it with insulated wire splices or replace it with a polarized weatherproof connector like a trailer-wiring connector.

The wiring diagram for the control circuit is in the back of the GMC Motorhome Maintenance Manuals X-7525, X-7625 and X-7725. It is shown on the Living Area 12-volt DC Electrical System diagram. The control wiring is schematically shown in the X-7525 Maintenance Manual on pages 24C-47 and -48.

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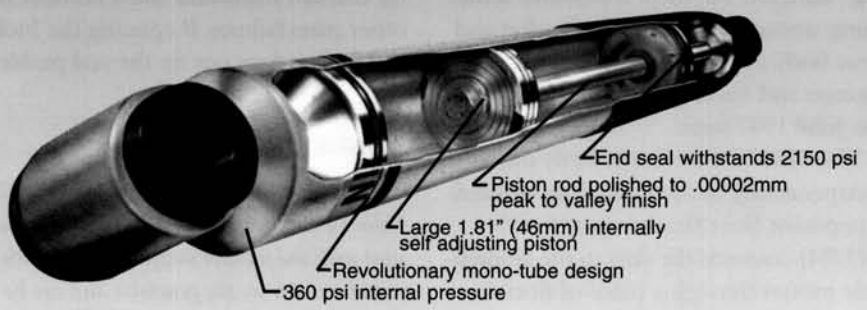
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Combination Valve

In a discussion about the combination valve in the braking system in the GMC Motorhome, a question came up. Why do the rear brakes get 130 psi before the front brakes are applied?

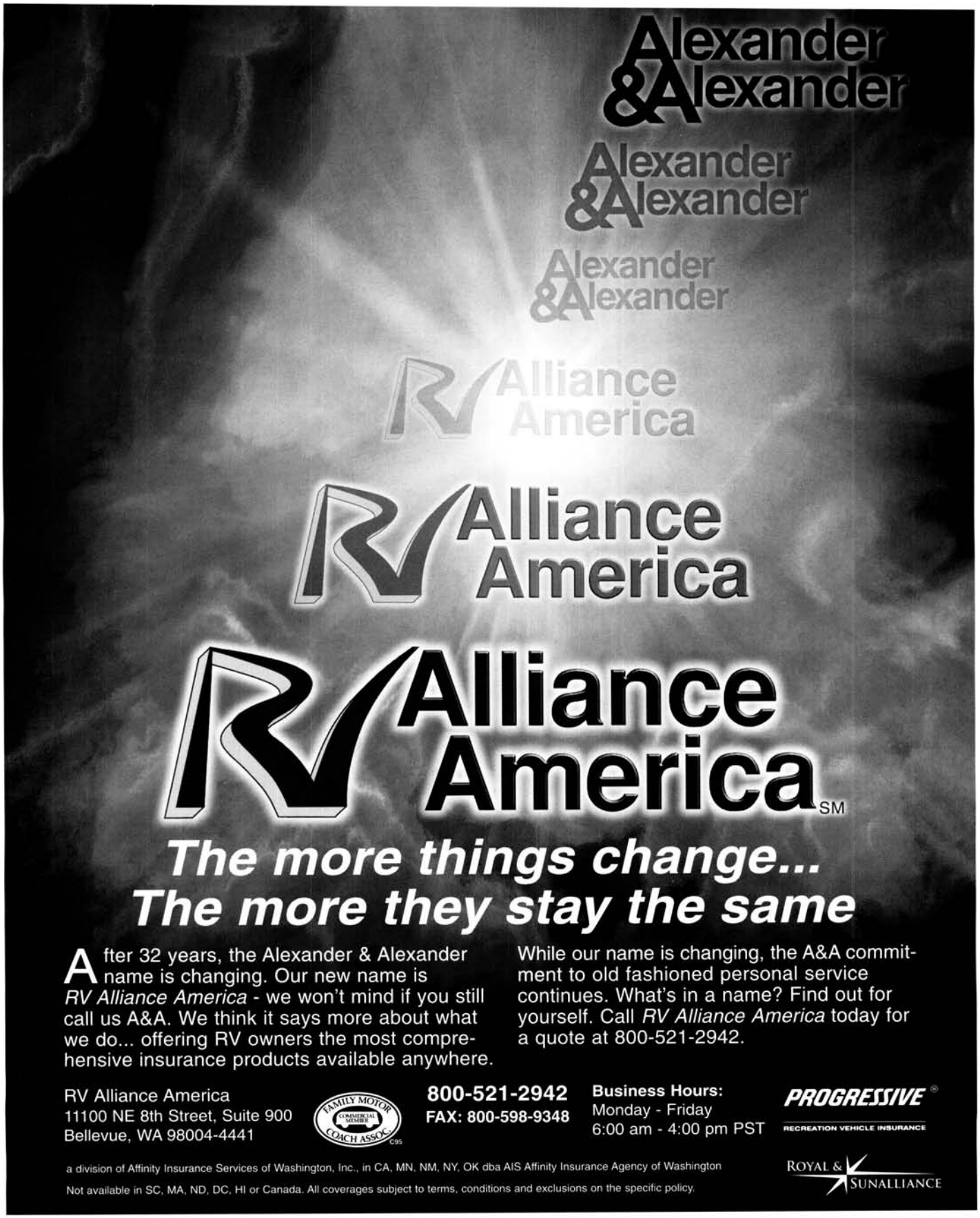
We wondered if you could shed some light on this subject? Thanks.

Chuck Garton
Ridgecrest, California

Real simple, Chuck. If the rear brakes don't go on first on a large vehicle that is rear-end heavy, it will fishtail. Worse, the rear end will come around and meet the front end (jack knife).

Think of a large truck and trailer combination with one or more trailers. The trailers hang on to the truck!

Wes Caughlan is President of Cinnabar Engineering, Inc. He is also a Consulting Editor of MotorHome magazine and writes the monthly Coach & Chassis column in that publication. E-mail gmcmh@aol.com.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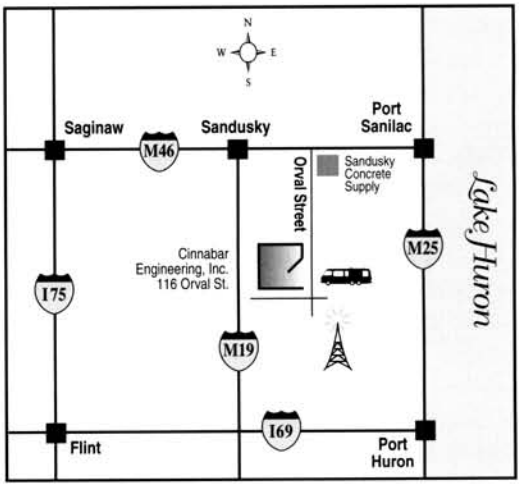

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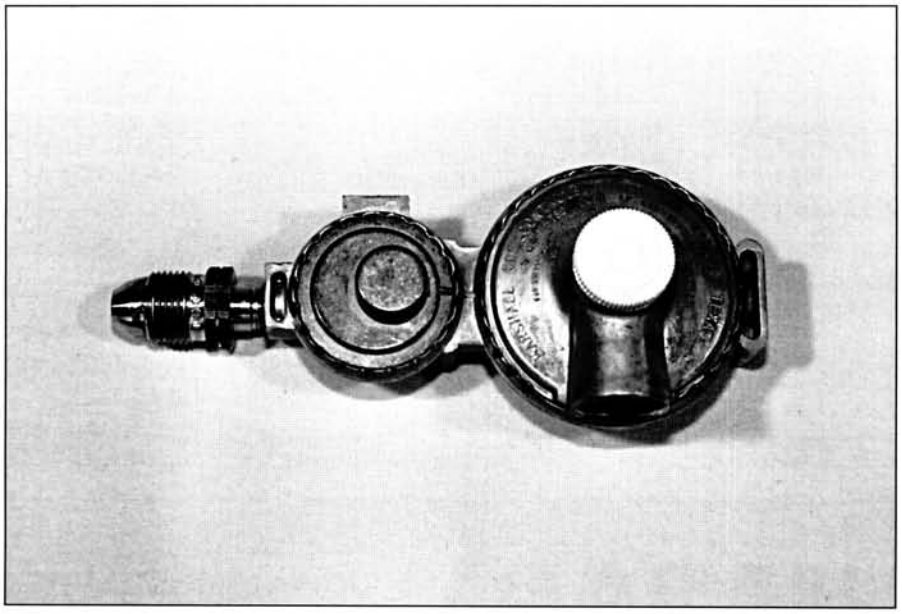
Continued from Page 4

tribution system. The concept is not new either. It has been used in home systems and some of the more expensive trailer systems for years. The idea is to reduce the tank gas pressure to a manifold pressure of 10 psi and then use a second regulator to reduce the manifold pressure to 11.0 inches WC for the appliances. Since this second regulator never "sees" more than 10 psi input pressure, it can have a much larger orifice than its single-stage counterpart, and that, combined with less expansion across the orifice, will make it considerably less susceptible to regulator freeze-up. Additionally, smaller pipe sizes can be used going from the first-stage regulator to the manifold preceding the second-stage regulator(s). Obviously this approach might be quite useful in bus conversions or large motorhomes and fifth-wheel trailers that do not have a centrally located LP-gas tank.



The new Marshall Gas Controls Model 294 two-stage LP-gas pressure regulator has an excess flow POL adapter inlet. It replaces most original LP-gas regulators.

Perhaps the long-known engineering advantages of two-stage regulation were what motivated the code change. Unfortunately, they were not used in the interpretation of the code, because a legitimate two-stage regulator with two diaphragms and different input orifices didn't appear in the market until just recently.

Back in the early 1980s, we tested several of the new "two-stage" regulators and found they could not hold a candle to the quality single-stage Rego 2403C9 that has been used in colder climates for years. Many think the Rego 2403C9 is too large (not physically) for a GMC Motorhome because it has a maximum capacity rating of over 500,000 BTU. However, BTU maximum ratings are a much abused purchasing criterion because even cheap regulators for barbecue pits have rated capacities of over 100,000 BTU at 70 degrees F, and that is why they are purchased with little thought given to their capacities at temperatures below freezing.

Most cheap regulators don't work worth a darn when all of the cooling variables gang up on them or when they are tested for lock-up pressure. Fortunately, there has been a consolidation of regulator companies in recent years, and Marshall Gas Controls introduced a legitimate two-stage regulator in the RV market about two years ago. There are several configurations of the new Model 290 regulator, and the one that is most commonly used on GMC Motorhomes is the Model 294 that has the top of the second stage rotated 90 degrees clockwise so the vent on the second stage will point down when the assembly is mounted left to right like most original equipment regulators. The Model 294 comes with an excess-flow POL adapter that conforms to all of the modern-day codes. The complete assembly sells for about $25.

The new Marshall Gas Controls two-stage regulator assembly is about twice as long as the original equipment regulator on most GMC Motorhomes. It can be cantilever installed in the vapor valve on the LP-gas tank just like the original equipment regulator, but popular accessories like the Marshall Brass Extend-A-Flow and Extend-A-Stay or LP-gas detector shut-off solenoid valves should not be installed on the assembly without securing it to a tank-mounted bracket. The overall length of these accessories make the cantilevered assembly too long for even mildly rough roads. Since tank-mounted brackets are almost impossible to install on original GMC Motorhome LP-gas tanks, a new two-stage regulator assembly with these accessories should be fastened to a body-mounted bracket. Then, a flexible high-pressure hose with an excess-flow POL adapter should be used to connect the assembly to the vapor valve on the tank. If only low-pressure accessories are desired, they can be fastened to a body-mounted bracket and a flexible low-pressure hose can be used to connect them to the regulator.

So build a manometer and test your LP-gas distribution system at least once a year. If it is leak-free but flunks any of the other tests, or if you are concerned about cold-weather operation, a new two-stage regulator is a good first step. If it still flunks after the regulator is installed, you may have to upgrade your distribution system. However, first check the original pipes and hoses for kinks and obstructions.

This article was first published in the February 1984 issue of MotorHome magazine. It was edited and updated for GMC Motorhome News, and is reprinted with permission.

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108,000 Original Miles. New Engine At 85,000. New Tires, Carpet, Shades, Batteries, Radiator, Steering Gear, Toilet, Air Bags, Bilsteins At 100,000. Two Roof AC, Pod, Zip Dee Awning. $25,000 OBO. Don Kring, New Haven, IN; 219-493-6078.

1976 Birchaven 23-foot, Side Bath.
111,000 Original Miles. Rebuilt Engine And Transmission. Pull-Down Bunk In Rear For Two Small Kids. Well Maintained. Runs Great. $15,000. Ronald Porter, Redford Township, MI; 313-534-8147.

1976 Royale 26-foot, Dry Bath.
455-cid Engine, Center Kitchen. New Frame, Brake Drums, Final Drive, Roof Pod. Rebuilt Transmission. All Equipment In Working Condition. $20,000. Ken Wojahn, East Tawas, MI; 517-362-3859.

1975 Eleganza II 26-foot, Side Bath.
75,000 Original Miles. Headers, Michelins, Alcoa Wheels, Transmission Cooler, 3.42 Final Drive, Bilsteins. Suburban Furnace, 3-Way Refrigerator, CD Radio. Stored Inside. All Service Manuals. $19,000. John Northrup, Howell, MI; 517-548-4950.

1975 Palm Beach 26-foot, Side Bath.
Uncommon Find. Beautiful Original Condition. Two Roof AC, Microwave, CB Radio. Stored Indoors. $18,500. J.R. Linkous, P. O. Box 246, White Sulphur Springs, WV 24986; 304-536-1226.

1975 Avion 23-foot, Dry Side Bath.
60,000 Original Miles. Loaded. Always Garaged. $25,000 OBO. Clarence Martin, Cleveland Heights, OH; 216-291-4921.

1973 26-foot, Side Bath.
Restored With Low Mileage On Rebuilt Engine. Everything Works. Excellent Condition. $19,000. Located In Jackson, MS; 800-844-2000 Extension 2458.

1973 26-foot, Side Bath.
Rebuilt Brakes, Air Suspension. Clean. $16,000 OBO. Ben Appleby, Southfield, MI; 248-559-8169.

1973 26-foot, Side Bath.
89,000 Original Miles. New Tires, Stove, Microwave, Refrigerator And Captain's Chairs. Imron Paint. $14,000 OBO. Jack Salika, Fernley, NV; 702-575-6210.

1973 26-foot, Side Bath.
58,500 Original Miles. Partially Restored. New Michelin Tires And Chrome Wheels. Death Forces Sale. $11,000 OBO. Sharon Rountree, Bakersfield, CA; 805-836-8107.

1973 Side Bath.
Fifteen Percent Restored. New Parts. Low Miles. $18,000 OBO. 616-842-7639.

1973 Canyon Lands 26-foot, Side Bath.
78,000 Original Miles. New Bilsteins, Leveling Valves, Brakes, Mini-Blinds. Hitch, 6-kw Onan. $14,500. Darwin Gearhart, Lakeland, FL; 941-859-7016.

1973 Canyon Lands 26-foot, Side Bath.
103,000 Original Miles, 50,000 On Engine. New Tires, LP-Gas Refrigerator, Upgrades. Alcoa Wheels. $17,500 OBO. Tom Cherry, Bakersfield, CA; 805-399-1400.

Parts For Sale

Wanted: 16.5 × 6 Chrome Wheels.
One or Two Needed For Radial Tires. Fil Aguirre, Tahoe City, CA; 530-583-6141.

Parting Out 1977 Royale 26-foot.
Frame Sections, Gas Tanks, Body Sections. Call For List. Don Hauff, Campbell, CA; 408-379-0440 After 6 P.M. Pacific Time.

Seven Original 1976 Radial Wheels.
Michelin XPS Tires And Wheel Covers Included. Make Offer. Two Armstrong 16.5 × 6.75 Radial Wheels, $40[00] Each. Bruce Winslow, River Forest, IL; 708-771-6471.

1977 Palm Beach Parts.
Captain's Chairs, Couch, Rear Seats. Cabinetry, Refrigerator And Other Parts. Tom Bradley, Chandler, AZ; 602-814-1631.

Complete A&E 18-Foot Awning.
With Hardware, $500[00]. One Pair 1.5-Inch Rear Control Arms With Axle Spindles, $350[00]. Two Drive Axles, $150[00]. John Stewart, Salt Lake City, UT; 801-467-0293.

Advertising

Subscribers are entitled to one noncommercial classified advertisement per year at no charge. Additional noncommercial advertisements in the same year are $10[00] each. Commercial Advertising Rates are available on request. Direct advertising to: Mrs. Lorraine Graham, Cinnabar Engineering, Inc., 116 Orval Street, Sandusky, Michigan 48471; TEL 810-648-2445, FAX 810-648-9858.

The closing date for the September 1998 issue is August 15, 1998.

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